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NOTES, MEDICAL AND SURGICAL, TAKEN DURING THE LATE SIEGE OF LUCKNOW.

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In the following notes, taken during the late siege of Lucknow, some of the principal Medical facts of interest are enumerated, and the diseases which prevailed are commented on. A list of the wounded admitted into the Native Hospital, in joint medical charge of which I was placed, is given; and I have ventured to add another of a few cases,—about forty, of European Officers and others, whom I was called upon to see in the course of my duties. These give a fair idea of the kind of wounds met with throughout the siege; and I leave it to others to publish their notes of the sick and wounded admitted into the European Hospital. I should mention that many of the Europeans in the list of wounded were sent to the European Hospital for treatment, as they could be better attended to there, than where in the Garrison.

The siege of Lucknow commenced on the morning of the 15th June 1857, and lasted till the 25th September, when Generals Outram and Havelock entered the intrenchment at the head of 2,500 men. Though the presence of these troops was a great relief, and probably the saving of the

belcaguered Garrison, yet the final and complete relief took place only on the 17th November, when the Commander-in-Chief himself opened up the communication with Alum Bagh. The following notes however are more particularly drawn from my experience during the period previous to the 25th September,—except those on the wounded, which extend to the 20th October.

For several weeks before the actual siege commenced, many Officers and other Europeans,—Serjeants of mutinous Native Corps, and others, with their wives and children, had been arriving at the city, and were received into the various houses round about the Residency. These persons had escaped from the districts near, for the most part simply with their lives. They had had to fly from the stations of Oude at a moment's notice, and often on foot, to avoid the bullets and bayonets of their own Regiments and their own Sepoys. Many were not so fortunate as to escape at all, and were burnt to death or cut up,—men, women and children, in their bungalows or on their own parade grounds. Many were shot down and exterminated, while being conveyed towards Lucknow by the very men who had undertaken to guard them and had sworn the most solemn oaths to see them safely to their journey's end. Many again,—delicate women and young children,—had been exposed to the full heat of a tropical sun, in June, and compelled, in some instances, to walk miles without food, and in constant dread of pursuit by a relentless foe; while others, less fortunate, fled to the jungle and then lay down to die; or, possibly, met a worse fate at the hands of the armed ruffians who infested the country. Those who were fortunate enough to reach Lucknow and were lodged, as I have mentioned, in the immediate vicinity of the Residency were, for the most part, without clothes, except what they had on at the time of their flight.

The Residency, at this time, was filled with ladies and children who, for the most part, had come there before the Mutiny in Cantonments. The Judicial and Financial Commissioner's houses were opened to the strangers from the districts; while the Offices of those gentlemen, the Post Office, various musjids and other edifices, and, in short, every available building whatever were converted into dwellings for the European and Eurasian population of Lucknow, and it may be said of Oude generally. Of course the crowding was great, and exercised, as will presently be seen, an injurious effect on the health of the Garrison.

The entrenchment, though not thoroughly completed when the siege began, was in a forward state and embraced a space of raised plateau round the Residency, of some 2 miles in circumference, - the river flowing at a short distance on its North Eastern side.

There was, up to the last moment, a small camp at Cantonments, so that, till the actual shutting-up of the Garrison, communication was kept up with the districts around; and the Commissariat arrangements were carried on so vigorously that, at the time the siege began, above 4 months' provisions of meat and grain had been laid in. Still, when the siege commenced on the 28th June, it was scarcely expected; and many persons found that they had not stored up little luxuries and even necessities, the want of which they severely felt after the lapse of a short time.

On that memorable morning, when the small force which had gone out to meet the enemy was driven in, after having suffered very severely in an engagement at Chinhut, a place about six miles from the city,—the Garrison of Lucknow found itself hemmed in on every side by a force of certainly twelve to fifteen thousand men,—which, subsequently, was fully doubled, who had with them from 30 to 40 guns, including many heavy pieces.

The numbers of the Garrison at this time appear as follows :—

*Strength of the Lucknow Garrison on 30th June, 1857.*

EUROPEANS.

Chaplains.	Officers.	N. C. Officers.	Drummers	Privates.	Non-Mily. Combatants.	Total.	Women.	Children.	Grand total.
2	130	63	20	567	147	929	257	281	1,467

NATIVES.

Fighting men.	Public Camp followers	Private. Camp followers	Total.	Grand total of Garrison.
611	162	742	1,515	2,982



Of the fighting-men, to oppose the large force outside, it will thus be seen that there were but 1,538; and this included, besides a good many wounded, a considerable number of Natives who thought our star was on the decline, and who, therefore, could hardly be depended on. It included many too, who had never seen a shot fired, and some who had hardly used a gun,—men however who felt that they were about to fight for very life and all most dear to them, and who knew their wives and children were watching their every movement and praying for success to crown their arms. Men and women were in an extraordinary position, and it required a great effort on the part of both to sustain them in it. Notwithstanding however the check at Chinput, and the loss experienced there; notwithstanding the overpowering numbers of the enemy and their rapid advance on the city, and in spite of the jaded condition of those who had previously come in from the neighbouring stations, and the generally crowded condition of each house in the intrenchment,—the besiegers were repulsed in the fierce attack they made during the first three days of the siege, with a loss to the besieged, insignificant indeed as regarded numbers. Their beloved Chief,—Sir Henry Lawrence, was, however, mortally struck by a shell on the third day, and this circumstance tended not only to depress their spirits, but to make them feel, in an intenser degree, the difficulties and dangers of their position.

After the closing in of the enemy and the cessation of communication with the surrounding country, people began to feel the hardships as well as the perils incident to their situation. At the first alarm, most of the servants,—thinking the Garrison doomed, had fled, leaving their masters to find for themselves. To ladies particularly, this was a great loss; and, subsequently, when arrowroot and sago, sugar and port-wine were not to be had; when milk was very scarce, and eggs sold at 2 Rupees a piece, and whenever soojee was not abundant,—it may be imagined that people put on grave faces and looked anxiously for “The Relief.” As will be seen presently, children especially were the sufferers, for broth and soojee and rice were, literally, their only food. There was certainly porter for those persons who urgently required it; but beer was not to be had after the early days of the siege. Meat and attah were the staple food of adults; but ladies,—especially the sick, could with difficulty eat or digest chuppaties, and no bread was seen during the whole siege.

The Sanitary arrangements were carried out before the besieging army arrived in a very vigorous manner, and the whole area of the entrenchment was cleared of filth to an amazing extent. When however, the siege began, the establishment of the Sanitary Officer vanished, and he was left comparatively powerless. The Garrison then had to bury dead horses and other animals of all kinds; and some difficulty was experienced in getting these, and the bodies of Natives and others, disposed of in the proper manner. Europeans were interred in the Church-yard, which had been included in the intrenchment; but it is believed that the enemy have not allowed the bodies to rest in their graves.

But, spite of every effort, where persons are crowded together as in a Garrison, and are under a Tropical sun, and where servants, so particularly necessary in India, are few and far between,—filth and nuisances will collect; and it may be conceived that, after a few weeks, the air of the entrenched enclosure became tainted, and disease became prevalent. Perhaps it was well that the season was comparatively a dry one. At the beginning, the heat was great; but after the first two or three weeks, rain fell in some quantity and the air became cooler,—the thermometer generally ranging from  $85^{\circ}$  to  $90^{\circ}$ .

Whether the women and children, who were for the most part shut up in the houses and consequently unable to enjoy what fresh air there was,—or the Officers and Soldiers, who often slept out in the damp trenches or were exposed to great exertions in alternate sun and rain, suffered most in health, it is not easy to say; but undoubtedly all were severely tried, and the trial proved too much for many. It may be mentioned that the women and children of H. M. 32nd Foot,—which Regiment formed the staple of the Lucknow Garrison, had nearly all perished miserably at Cawnpore; their fate foreshadowing, as it were, that of Lucknow, should it fall before the arrival of relief.

No building in the intrenchment was safe from shot, shell and bullets, but the European and Native Hospitals were chosen in spots as free as possible from fire; and though, in the former, several men were wounded by balls that penetrated; and, though the upper story was riddled by round shot, yet the arrangements were good, and every thing was carried on in a regular and systematic manner. The Medical Staff lived in the Hospital; women were allowed to nurse their husbands; boys from the Martinière College

acted as help mates to the nurses, and made themselves useful in cooling the patients with hand-punkahs, &c.; while, for several weeks, certain benevolent ladies lent their aid to smooth the pillows and dress the wounds of the poor fellows,—both Officers and men who lay in the different wards.

All luxuries that could be procured, as jellies, port-wine, arrow-root and sago, were made over to the Hospital soon after the commencement of the siege; and, for the sick throughout the Garrison, indents for these things were sent in by Medical Officers, as they were required. But, as already mentioned, the supply was not equal to the demand, especially towards the end of the siege.

In the Native Hospital also, matters were carried on in a regular manner. The stock of servants was but very limited, most having fled at the first alarm. But the Hospital, though greatly crowded at times, answered its purpose sufficiently well, and the patients received there every attention.

Taking all the above mentioned circumstances into consideration; remembering the disheartening condition of affairs in the Garrison at the commencement of the siege; the effect of the loss of dear relations during its continuance,—for women sometimes saw their husbands shot before their very eyes; the hard work in the heat and wet, of the men,—the anxiety, close confinement, and insufficiency of suitable food of the women and children; the almost necessarily defective Sanitary arrangements and over-crowding of the whole Garrison; taking all these things into the account, can it be wondered at that cholera, diarrhœa, dysentery and fever found their victims,—and that, besides those who died of their wounds, many met their death through disease?

I now propose to notice these and a few other diseases, and begin with

#### CHOLERA.

Cholera prevailed among both Europeans and Natives, especially during the first two months of the siege, but could never be called epidemic. It was reported to be raging in the city, and the chances are there was truth in the report, as, unquestionably, during the month of June, many deaths from it took place. I believe indeed that Lucknow, like other large cities of India, is never wholly free from Cholera.



In the intrenchment, many cases of Diarrhœa ran on into Cholera, while, in others, such was not the case ; and, as I have often known, the former were more manageable than those instances in which Cholera came on suddenly. Among the latter, the symptoms were often of a severe type from the first, and treatment seemed of little avail.

In my experience, Natives recovered better than Europeans ; but of the latter I have no statistics. Of Natives, nearly half the cases admitted into the Native Hospital recovered. Of those Natives whom I saw out of Hospital, the majority recovered. Of Europeans I did not attend very many, but several recovered. Those whom I saw, were many of them children, but they, for the most part, did badly. The prognosis was more favorable in the case of adults.

At the causes of this complaint, happening as it did in a close entrenchment, it is hardly necessary to glance. The real cause of Cholera has yet, indeed, to be further investigated, but that certain conditions prepare the way for its action, is undoubted, and these conditions were present at Lucknow. They were, probably, of the same nature as those which produced the Diarrhœa subsequently described and may, therefore, be omitted here. I may mention however, that, in several cases of Europeans attacked by Cholera, *inordinate appetite* was previously observable. I myself noticed this in one or two instances of convalescence from wounds, and I believe it was not an uncommon case.

It is quite unnecessary to notice here the symptoms of this disease. They were the usual and well-known symptoms of Cholera. Sometimes there was premonitory Diarrhœa, sometimes not. As a general rule, the intensity of the complaint was over in 24 hours and signs of either amendment or death had set in. Collapse, in those cases where it occurred, came on quickly. Subsequent fever I did not observe in any instance that I can call to mind, but in one, that of a boy, decided head-symptoms appeared and ushered in death.

With Natives, the treatment I pursued was that which I commonly employ. No stimulants were given. I gave the same pills as are mentioned by me in a former number, (III), of the "Indian Annals" except that of opium one grain was given in each pill, instead of half a grain. Creasote and water to allay vomiting, I found most useful. Turpentine frictions and garters tied round the legs, relieved cramp. Congee-water and dilute sulphuric-acid made useful drinks. With Europeans, in consequence of not seeing cases often for some hours, I could not pre-

vent stimulants being given. Nor, as most persons were living rather under ~~har~~ <sup>war</sup>, did they seem to be so much contra-indicated as they would otherwise have been. But, when I allowed a stimulant at all, it was in small quantity and consisted of weak brandy and water. Judging however from my own experience and that of the European Hospital, where stimulants were in most instances given in profusion, I am led to conclude that in very few cases is brandy, (the best stimulant,) advisable even when Cholera and any other diseases that may prevail, as at Lucknow, are of an asthenic character. With Natives this is, undoubtedly, the case, and so I think also with Europeans; though, the latter, being more accustomed to stimulants, are more likely to tolerate them. Calomel treatment was tried in the European Hospital with a favorable result in one or two cases; but it was perhaps doubtful whether the Calomel was the cause of that result. Bleeding, *even during collapse*, seemed to answer well in several cases. I am not aware that this plan has been practised of late years in Cholera. In several instances however, 4 ounces of blood were obtained from the arm of patients in collapse. The pulse returned, and though the effect often passed off, the bleeding was sometimes repeated, after a few hours, and with apparent success. In the European Hospital, opium appears to have proved hurtful, and its use was discontinued in a great measure; but I cannot say my experience, among the Natives at least, agreed with this.

### DIARRHŒA.

From the commencement of the siege, this complaint prevailed. Those who had ever had it before were sure to suffer from it now; and several cases of old Hill Diarrhœa which I observed were so augmented as to end fatally. Strong European Soldiers too began to be ill; and,—though medicines, with directions, were placed in the hands of Pay-Serjeants of Companies, so that at the first moment of attack the men might have relief,—there were very many admitted into Hospital and many sunk under the disease. Among women and particularly children, Diarrhœa was very common; indeed the latter may be said to have been visited by it almost in an epidemic form. Of the Natives, but few were affected with Diarrhœa, though many, as will be again noticed, had attacks of Dysentery.

The causes that produced Diarrhœa have been already glanced at.



The time of year, with its alternations of heat and wet, was unfavorable; especially for those who had, as was the case with all, to remain on the *qui vive* night and day, ready to "turn out" at a moment's notice. The anxiety of mind and want of proper rest, were alone sufficient to weaken and predispose even the strongest to disease; and added to this were the hard work in the trenches, in digging mines, in raising traverses, and in all fatigue-duties, as well as in the actual serving of guns and mortars, and general fighting. Again, the Sanitary state of the Garrison, though, at first, well enough, became, after a time, any thing but satisfactory. The drains and necessaries became foul; the different houses were, as indeed was inevitable, over-crowded; water in consequence of the flight of the servants, was but sparingly used by many people; while, for the same reason, clean clothes were at a premium, and punkahs at a stand-still.

The food, as already noticed, disagreed with most people. Luxuries, for the sick even, as sago, arrow-root port-wine, sugar, milk, eggs, &c., &c., were scarce; and, for the healthy, chuppaties would not always supply the place of bread, nor rice that of potatoes and other vegetables. The cooking pots moreover were not "kullaied" during the siege; and as they were not, in most cases, kept particularly clean, I suspect the actual food eaten contained numerous particles of deleterious matter.

Super-added to these causes, may be noticed the voracious appetite which numbers of people seemed to have,—especially those recovering from wounds or illness. Many, I feel certain, made themselves ill by yielding too much to this tendency, which led them often,—not content with plain rice or chuppaties and meat,—to indulge in chocolate, hermetically sealed salmon, herrings, sardines, and other rich things, of which they would partake liberally, thinking to make up in this way for the loss of their accustomed good bread, vegetables and puddings.

The symptoms of languor and lassitude generally preceded the actual complaint; and uneasiness, even amounting to pain, was generally felt across the abdomen, especially in the course of the colon. A copious evacuation was speedily followed by others of the same description; generally these motions were watery in consistence, light in color, but fœculent in odor. They continued till the patient was worn out, till they were checked by medicine, or till they degenerated into rice-water, as in certain cases where Cholera ensued.

They were accompanied not by fever, but by a great feeling of nausea; and were succeeded by a sense of weakness and general prostration. This diarrhœa was indeed of that asthenic form which might be expected to result from the causes already enumerated as producing it. It seized men, women and children, and proved fatal in many cases. Women, and particularly children, suffered from it most frequently and severely,—no doubt because by them especially were the change of food and its unsuitable character felt.

In many cases, this diarrhœa was difficult to shake off, and very liable to return, as indeed might be anticipated from the circumstances of the Garrison. Of the men however, though all suffered more or less from looseness of the bowels, most improved as the siege continued; for diarrhœa was very common at first, and less so after a time,—no doubt in consequence of men's stomachs becoming accustomed to the chuppaties, which formed the staple of their food.

For those afflicted with diarrhœa, rest was indispensable, but not easily procured. A few nights in bed,—for by day the flies would not allow of sleep,—did more in most cases than all medicine; and men came to Hospital often, and, after a couple of days' rest there, departed sound and well, having required but the simplest medicines. Regulation of the diet was, in nearly all instances, a thing difficult to carry out. The indications were to avoid greasy cookery, meat and chuppaties; while rice, soojee, arrow-root, sago and tea, and subsequently broth, minced-meat and port-wine were allowed. For children, port-wine, soojee or milk and ground rice, with some sugar added, were found to constitute the best diet; and, after a time, minced meat and rice could be borne and were relished.

The medicines I found most useful were the following, *viz.*, the Pil hydrarg. c. opio et zingiber, which had a most excellent effect, particularly when the motions were light colored,—a thing of frequent occurrence. Sometimes, especially in cases of chronic diarrhœa, the following pills were useful:  $\mathcal{R}$ . Pil. hydrarg. 3ss, cupri sulph. pulv. opii. a. a. gr. vi m ft. pil xij; one pill to be taken every 3 hours.

Chalk mixture, as a general rule, I did not find useful. Mixtures of mucilage and tinct kino, often with quinine disulph. and acid. sulph. dil. conjoined, checked the diarrhœa, acting most favorably on the mucous membrane of the bowels, and exercising a tonic effect on the system generally.

With children, small doses of Dover's powder and hydrarg. c̄ cret. were sometimes sufficient to check the complaint. But with irritable stomachs, either in children or adults, these did not answer; and then a mucilage mixture with laudanum and tinct. kino, or mistura cretæ with tinct. kino, or catechu seemed to be retained and to act very beneficially; creasote too I found invaluable in cases where nausea was a troublesome symptom. Enemata of mucilage and laudanum, or in the latter stages of the complaint, of mucilage and port-wine, and of beef-tea or arrowroot and port-wine, were very soothing and supporting; and in many cases being retained for several hours, really were instrumental in promoting recoveries which otherwise had been but doubtful.

### DYSENTERY.

The form of Dysentery which affected the Garrison was acute, but somewhat asthenic; and, while the Europeans were attacked most by diarrhœa, the Natives, in my experience, suffered, in a greater degree from Dysentery. At the same time the complaint in the Natives, as is generally the case, was milder in form than that of the Europeans; and, on the whole, the disease was of a very manageable character, and nothing like that inflammatory and ulcerative Dysentery which is met with in Bengal Proper. There was, however, a great tendency to relapse, even after an entire recovery. Towards the termination of the siege, the type of Dysentery somewhat changed. It became more asthenic even than before, and was evidently of scorbutic origin. The same causes that produced diarrhœa, doubtless led to Dysentery. It is therefore unnecessary to re-enumerate them. Feelings of lassitude and fatigue, with uneasy griping sensations in the abdomen, generally ushered in an attack of Dysentery. Then came, in many cases, a full watery motion; or sometimes, straining and inability to pass more than a small lumpy stool, or a quantity of watery, mucous fluid. However this might be, after a few hours, tenesmus, frequent straining and bearing down pains in the rectum became marked; the latter more especially on the patient's standing up, and particularly on his making any exertion. The prostration indeed, was, in many instances, very considerable; nausea too was a prominent symptom; fever generally absent. The motions were small in quantity; sometimes dark, but generally, after a little time, light-brown or whitish



in color; degenerating into mucous and then bloody stools, and having little or no fœculent odor connected with them. Blood was not passed in large quantities in more than two of the cases I saw; but pure blood was, undoubtedly, discharged in many instances, showing how great a degree of congestion, at least, existed in the mucous membrane of the large intestines. That ulceration did not take place, was, I think, shown by the rapid recoveries which most patients made when they once began to take care of themselves; for they very soon, as a general rule, ceased to have bloody motions, even though the tendency to looseness and straining might, and did often, remain for some time. There was indeed in this complaint, as in the diarrhœa, the same difficulty to shake off thoroughly the disease,—the same tendency to relapse. All classes of persons suffered more or less from Dysentery; but, as I have mentioned, it appeared to affect a greater portion of Natives than of Europeans. Of the latter, the men suffered more than the women and children; probably on account of their greater exposure to damp and the night air, and to their unwontedly hard work.

The treatment and general management of this Dysentery was very much the same as that required in the diarrhœa already described. Both arose from the same causes; both were asthenic in form, and accompanied by general weakness. In both, therefore, rest was indispensable, and slight nourishing food was required. In the Dysentery, as in the diarrhœa, meat, curries, chuppatics, &c., were prohibited; while soojee and port-wine, or arrowroot or sago and port, and sometimes jelly or ground-rice were allowed. Subsequently, soup and minced-meat, with port-wine or sherry were relished, and the patient soon recovered his ordinary appetite. Eggs, (when procurable), were very useful in cases where great nausea existed; and I often found that a boiled egg mashed up with a little rice, was relished when other things could not be taken.

I generally commenced the treatment with a pill of pil. hydrarg, opium and ginger, as in cases of diarrhœa, followed by one ounce of castor oil with xv. or xx. minims of laudanum, after three or four hours. Sulphate of copper, I did not find so useful as in diarrhœa; and indeed the above-mentioned pills answered every purpose in the great majority of cases. I may here remark that opiates, as a general rule, seem to me to exercise a better effect in most forms of

Dysentery in this country, when given alone than when joined to astringents. The latter act for a time in a favorable manner; but their effect seems to pass off leaving the patient but little relieved,—while that of opium or morphia is more lasting, at the same time that, especially when joined to pil. hydrarg., it appears to allow of the natural function of the bowels being carried on.

At the same time, when the stomach was irritable, a mixture with mucilage and tinct. kino. was very useful, and was retained when opium or laudanum, or, with children, Dover's powder and Grey powder, were rejected. In such cases too, chalk mixture with tinct. kino. or catechu proved successful; and creasote, when every thing else failed, was a sure remedy for nausea. Enemata of mucilage and laudanum were most useful; while, in the advanced stages of the complaint, mucilage and port-wine, or beef-tea, or arrow-root and port-wine enemata, were almost indispensable.

#### SMALL-POX.

At the commencement of the siege, there were many cases of Small-pox among the children of the Garrison. In the city, this disease had been prevailing for some time, and hence, probably, its extension to the Europeans. After the first month or six weeks of the siege, it entirely disappeared from among the latter; whereas, had communication been kept up with the city, the chances are it would have continued its ravages among them. The interruption of communication therefore no doubt acted favorably in this instance for those confined within the intrenchment. The disease was, as far as I observed it, of a severe type, both in children and adults. I saw many fatal cases; though some, especially of adults, were mild and accompanied by but little constitutional disturbance. Instances in which the eruption became confluent, were not rare; and the majority of these proved fatal, head symptoms generally setting in about the eighth or ninth day.

#### FEVER.

From genuine miasmatic fevers the Lucknow Garrison was peculiarly free. Shut up in a confined space for many months during the hot and rainy season, with but indifferent Sanitary arrangements, and encumbered by a large collection

of animals of various kinds, a daily increase of filth and a consequent pollution of the atmosphere, necessarily, took place. It was to be expected, therefore, that Fever would prevail. Yet it was almost absent; and indeed, speaking generally, I should say that the latter weeks of the siege,—curious as it may seem, were more healthy than the first. This may be partly accounted for by the supposition that the weak and unhealthy part of the Garrison fell victims early to disease, while the strong and healthy remained; but the fact that Fever was comparatively of rare occurrence is a curious one.

While, however, Miasmatic Fevers were seldom met with, a low kind of Typhus Fever,—I believe the true Typhus,—was not infrequent. I saw several cases of this disease among Europeans, generally terminating fatally, and of which the subjoined is a good example; and I may be permitted to add that, among Natives also, I believe I have met this complaint in its true form. I had some records of cases observed formerly, but these have been lost with my other papers.

*Case.*—Lieut. —, ætat. 24, of sanguine temperament; during July and the beginning of August, had suffered from repeated attacks of diarrhœa and Fever. About the middle of August, he became affected by a low Fever, resembling, in many of its features, the true typhus.

The digestive organs were greatly disturbed; the tongue was foul, the saliva thick and gummy; the bowels were opened at irregular intervals, with motions loose, peculiarly offensive in odor, and in appearance resembling coffee-grounds. The stomach was irritable, nausea was almost constant, and but very little food could be digested. That the circulation was deranged was shown by the pulse, which was constantly weak and irritable, ranging from 120 to 150 in frequency, and easily excited by slight causes. The respiration too was quickened, particularly towards the close of the case; and, indeed, there were, throughout, frequent dyspnœa and sense of suffocation. The urine was high colored, but no minute examination was made of it. The skin was generally moist and clammy, and latterly exhaled an indescribable odor. After about the third week of the Fever, an eruption appeared on the skin of the abdomen, which gradually spread to the chest and arms and then to the lower limbs. This eruption resembled that of typhus, and continued to increase till the 5th or 6th day, after which it faded slowly away. The spots were tolerably bright in



color, disappearing on pressure, but immediately returning on its removal. Headache was never complained of, but there were, throughout, a tendency to sleep and great lassitude and inability to exertion. During sleep, I observed twitching of the muscles of the face and limbs, and this increased as the case proceeded. The patient, at one time, though much emaciated, appeared about to rally. The eruption disappeared, the bowels became more regular, the head more collected, the pulse less irritable, and a favorable change seemed to have set in. Still the respiration and pulse were too quick, and great weakness remained. A change of locality was tried, but soon it became apparent that the system was giving way; and, in the beginning of October, death took place. The treatment consisted of astringents and opiates to check the diarrhœa, and subsequently tonics,—as quinine and iron, and the mineral acids; while stimulants, particularly port-wine and rum, (because others could not be procured,) and a supporting diet were prescribed.

The want of the necessary comforts for sick men, proved a source of serious inconvenience during this siege; and, in consequence of it, many cases, not in themselves dangerous, became so, and too often terminated fatally. Diarrhœa and Dysentery became chronic, or were succeeded by low Fever; and in other instances, constitutions naturally strong were undermined, and became the ready recipients of Typhus and Cholera.

#### CHILD BIRTHS.

A good many births took place during the siege. As might be anticipated, many were premature, for what a position was it for ladies and women to be in! Round shot frequently crashing into the houses, shells bursting in the roads and open spaces, and in the very verandahs; bullets constantly whistling through the air, or “thudding” against the walls; and mines occasionally shaking the very earth! Such were the sights and sounds which met one on every hand; while our own heavy guns, morning and evening, replied to the enemy’s fire and shook the air with reverberations. At the commencement of the siege, it was especially remarked how all the children, of every age, felt the confinement. The weakly gave way at once. The strong alone survived; while new-born children almost invariably pined and died.

## SUICIDE.

It has been remarked, I believe, during sieges generally, that suicide and that depressed state of mind leading to it, is not uncommon. Nor is this more than one would expect, considering the numerous and pressing causes of anxiety that must be present to the minds of nearly all those, who are surrounded and cut off, as it were, from the outer world. At Lucknow, this was peculiarly the case; for, with the example of Cawnpore before them, and the knowledge that theirs might be a similar fate, the garrison had cause for deep solicitude, more especially as their wives and all they held most dear were so intimately concerned. Sometimes, indeed, men's spirits were good, and they held up bravely; but, occasionally, when weeks had passed over and no news from outside was received; when well-loved comrades or valuable officers, for there were many such, fell by the enemy's bullets or by disease, which might have been perhaps successfully combated under more favorable circumstances; they were apt to despond, and to feel the reality of their dangerous position. But, though the thought of it was too much for the minds of one or two, we must rejoice that these cases were rare; and, while gently drawing a veil over them, can but feel proud that so much privation and so great a trial were endured with a cheerful spirit by the great mass of the garrison.

Besides irritation and depression of mind, several cases of irritability of the bladder occurred. In some instances this irritability constituted a disease in itself; in others, it was grafted on to other complaints; and, in all, it formed a most serious indication, and was not unfrequently the precursor of death. It presented itself in persons of nervous temperament; and, as might be expected, was almost as difficult to combat as its kindred disease of the mind.

## SCURVY.

TOWARDS the termination of the siege, scorbutic eruptions, swellings of the limbs and joints, and scorbutic dysentery, became of frequent occurrence. I never observed the true scurvy,—the bleeding gums and loosened teeth; but patches on the skin appeared in many cases, in children particularly; while asthenic dysentery, no doubt of scorbutic origin, presented itself; and swellings of the knees and

ankles were not unfrequent. Considering the total want of vegetables, with the exception of a very little "sagh," and the absence also of lime juice and vinegar, the wonder is that more persons did not suffer in this way. Rice was served out, latterly, of course, in very reduced quantity; but rice cannot be considered a good substitute for good vegetables, a fact proved indeed by the experience of this siege. The best treatment for the complaint, and an evidence too, if such were needed, of its real origin, was the partaking again of fresh vegetables. When the supply of these was opened up, scorbutic diseases began to disappear; and, as the appetite for vegetables was satisfied, the result of being deprived of them became less and less manifest.

Having thus reviewed the principal Diseases which prevailed in the garrison, I propose to give a few notes of my experience of the Wounded during the siege. First however, it may be well to subjoin a return of the killed and dead of the garrison during the period preceding Sir James Outram's arrival. Here is the return.

RETURN OF KILLED AND DEAD OF THE LUCKNOW GARRISON, FROM 30TH JUNE TO 25TH SEPTEMBER 1857.

EUROPEANS.

Chaplains.	Officers.	N. C. Officers.	Drummers.	Privates.	Non-Military Combatants.	Total.	Women.	Children.	Grand Total.
1	28	43	6	248	23	349	15	41	405

NATIVES.

Fighting-men.	Public camp followers.	Private camp followers.	Total.	Grand Total of deaths exclusive of Private camp followers.
133	19	Loss unknown.	152	557



The total loss of the garrison during the three months, may, therefore, be set down with tolerable correctness at one fourth of their original number. But many desertions took place among the fighting Natives and Public Camp Followers, so that, before the termination of the siege, their numbers were reduced to about one-half from that cause alone ; and this must be considered in noting the mortality among them, as it appears in the above return.

Of Europeans, it seems that the Private Soldiers, (as might be expected), suffered most severely, their loss being not very far short of one-half ; next to them the Non-Commissioned officers ; then the Drummers, (who performed the duties of private soldiers) ; then the officers ; and lastly the Non-Military combatants. Among the women and children the mortality was, considering all things, wonderfully small.

I now proceed to consider the wounds and injuries of which I had experience during this siege. In order to render this easy, I cannot do better than give the lists in the exact form in which I made them out during my observation of the cases.

Here then they are.

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(1).—List of Wounded, admitted into the Native Hospital, Lucknow, between the 30th June and 20th October 1857.

Nos.	Age.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
1	25	Bullet-wound through abdominal walls and peritoneum, and into bladder.	Bullet not extracted, though attempted, .....	Death from irritation, ...	Wounded in garrison, lived 3 days.
2	25	Bullet-wound close to spine, ball passing into belly.	Bullet not extracted, .....	Ditto ditto, .....	Ditto ditto.
3	18	Round-shot-wound just above knee, smashing thigh.	Amputation of the thigh, primary, .....	Recovery, .....	Ditto (1) a good recovery.
4	34	Bullet through and above shoulder, bone not broken.	Bullet passed out, .....	Ditto, .....	Ditto.
5	34	Bullet graze of foot.	..... ..	Ditto, .....	Ditto
6	66	Bullet through arm, just above wrist, bone uninjured.	Bullet escaped, .....	Ditto, .....	Wounded at Chinhut.
7	60	Bullet through thigh, bone unbroken.	Ditto, .....	Ditto, .....	Wounded in garrison.
8	25	Bullet through mouth, producing bad compound fracture of lower jaw, .....	Ditto, .....	Death from irritation and exhaustion, .....	Ditto, lived 5 days.
9	50	Bullet through upper third of thigh, no fracture.	Bullet extracted, .....	Recovery, .....	Ditto.
10	40	Bullet-wound of skin of side, .....	Bullet passed out, .....	Ditto, .....	Ditto.
11	25	Bullet through thigh, bone untouched.	Ditto, .....	Ditto, .....	Ditto.
12	30	Round-shot-wound of foot and compound fracture of leg, .....	Amputation of leg primary, .....	Death from irritation and exhaustion. ....	Wounded at Chinhut, (2) lived 6 weeks.
13	30	Round-shot-wound, smashing thigh, .....	Amputation of thigh, primary, .....	Death from tetanus, ...	Wounded in gar- } Lived 10 days, rison, (3), ..... } operation not per- tal. } formed at Hospi-

No.	No.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
14	35	Bullet-wound of arm below shoulder, and compound fracture of humerus, .....	Bullet extracted, .....	Recovery, .....	Wounded in garrison.
15	50	Bullet-graze of side, .....	.....	Ditto, .....	Ditto.
16	60	Bullet through chest, .....	Bullet passed out, ... }	Death, from irritation and exhaustion, ..	Ditto, lived 15 days.
17	30	Bullet through nape of neck, .....	Ditto, .....	Recovery, .....	Ditto.
18	40	Bullet-graze of side, .....	.....	Ditto, .....	Ditto.
19	20	Shell-wound of foot, and smash of bones, .....	Hey's operation,—primary	Ditto, .....	Ditto, (+), ..... { A beautiful stump. and healed in 6 weeks.
20	20	Bullet-graze of thigh, .....	.....	Ditto, .....	Ditto.
21	35	Bullet-wound of thigh, without fracture, ball deeply buried among muscles, .....	Bullet not extracted, .....	Ditto, .....	Ditto.
22	25	Bullet-wound through thigh, no fracture, .....	Bullet passed out, .....	Ditto, .....	Ditto.
23	30	Round-shot-wound of leg, tearing off integuments, but producing no fracture, .....	.....	Ditto, .....	Ditto.
24	50	Bullet through thigh, and compound fracture, .....	Bullet extracted, .....	Ditto, .. ..	Ditto.
25	30	Bullet-wound through forearm, bone escaping, ... }	Bullet passed out, .....	Ditto, .....	Ditto.
26	25	Bullet through occipital bone, passing upwards and fracturing it, escape of brain, .....	Bullet extracted, .....	Death from irritation, ..	Wounded in Chinhut, lived 2 months.
27	30	Bullet-wound under skin of forearm, .....	Bullet passed out, .....	Recovery, .....	Ditto.



28	40	Bullet-wound of leg, and fracture of both bones, .....	Ditto, .....	Ditto, .....	Wounded in garrison.
29	25	Bullet-graze of arm, .....	.....	Ditto, .....	Ditto.
30	40	Bullet-wound and fracture of arm, also bullet-wound of thigh, bone unbroken, .....	Bullet not extracted from arm. Ball extracted from thigh, .....	Ditto, .....	Wounded at Chinhut.
31	30	Bullet-wound of shoulder, no bone broken, .....	Bullet passed out, .....	Ditto, .....	Wounded in garrison.
32	30	Three flesh-wounds from tulwar, in thigh, shoulder and head.....	.....	Ditto, .....	Wounded at Chinhut.
33	30	Bullet-wound of leg, bone unbroken, .....	Bullet passed out, .....	Ditto, .....	Ditto.
34	70	Bullet-wound through cheek, no bone broken, .....	Bullet spit out, .....	Ditto, .....	Wounded in garrison.
35	65	Bullet-wound of left side, in spleen, region, much hæmorrhage, .....	Bullet not extracted, ... {	Death from irritation and exhaustion, .....	Ditto, lived a month.
36	26	Bullet-graze of neck, .....	.....	Recovery, .....	Ditto.
37	30	Bullet-wound of lower third of thigh, no fracture, .....	Bullet passed out, .....	Ditto, .....	Wounded at Chinhut.
38	37	Tulwar wounds of neck and shoulder, .....	.....	Ditto, .....	Ditto.
39	45	Bullet-wound of foot, no fracture, .....	Bullet passed out, .....	Ditto, .....	Ditto.
40	60	Bullet-graze of back, .....	.....	Ditto, .....	Ditto.
41	50	Bullet-wound of thigh, bone escaping, .....	Bullet lodged, ... {	Ditto, .....	Ditto.
42	55	Bullet-wound of upper third of thigh, bone untouched, .....	Bullet escaped, ... {	Death from irritation & sloughing of wound, ... {	Ditto, lived 15 days.
43	45	Bullet-wound of side, ...	Bullet extracted, .....	Recovery, .....	Wounded in garrison.
44	30	Bullet-wound of arm just below shoulder, bone escaping, .....	Bullet escaped, .....	Ditto, .....	Wounded at Chinhut.
45	32	Bullet-wound under skin of buttock, .....	Ditto, .....	Ditto, .....	Wounded in garrison.
46	30	Bullet-wound under left clavicle, producing fracture, .....	Bullet not extracted, ... {	Death from irritation and suppuration, .....	Ditto, lived 25 days.

No.	Age.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
47	26	Bullet-graze of side, .....	.....	Recovery, .....	Wounded in garrison.
48	24	Shell-wound, a graze of thigh, ....	.....	Ditto, .....	Ditto.
49	30	Bullet-wound of side, breaking ribs, much hæmorrhage, ....	Bullet extracted, .....	Ditto, .....	Ditto.
50	30	Bullet-wound of arm, smashing bone and producing great laceration, .....	Primary amputation at shoulder-joint, .....	Death from irritation and exhaustion .....	Wounded in garrison, (5) ..... } lived 15 days.
51	20	Bullet through inner corner of orbit, lodging in brain and then escaping, .....	Bullet escaped, .....	Death from shock, .....	Ditto, lived 10 hours.
52	30	Bullet-wound through thigh, bone broken, .....	Bullet extracted, .....	Recovery, .....	Wounded in garrison.
53	25	Bullet wound of buttock, .....	Bullet lodged, .....	Ditto, .....	Ditto.
54	30	Bullet-wound through thigh, bone unbroken, .....	Bullet extracted, .....	Ditto, .....	Ditto.
55	60	Bullet through abdomen, wounding bowels and spleen, and producing great hæmorrhage, .....	Bullet passed out, .....	Death from shock, .....	Ditto, lived 6 hours.
56	55	Bullet-wound through hand, bones broken, .....	Ditto, .....	Recovery, .....	Ditto.
57	50	Bullet-wound through thigh, bone unbroken, .....	Ditto, .....	Ditto, .....	Ditto.
58	20	Bullet-wound of temple, into brain.	Bullet lodged, .....	Death immediate, .....	Ditto.
59	60	Bullet-wound of shoulder, ball breaking clavicle and entering chest, .....	Ditto, .....	Death from irritation and exhaustion, .....	Ditto, lived 3 days.
60	25	Bullet-wound of thigh, just above and behind knee, .....	Bullet extracted, .....	Recovery, .....	Ditto.

61	35	Bullet-wound of head, ball entering at inner canthus of left eye, and passing out in front of left ear, fracturing temple, .....	Bullet passed out, .....		Death from irritation and exhaustion, .....	Ditto, lived 12 days.
62	30	Bullet-wound of forearm; bones unbroken. The same ball then passed into left side, below ribs, through stomach and so out right side, 4-inches below nipple.	Ditto,		Death from exhaustion and shock, .....	Ditto, lived 2 days.
63	20	Bullet-wound of leg, bones unbroken, .....	Ditto,	.....	Recovery, .....	Ditto.
64	25	Round-shot carried off right arm near shoulder. No hæmorrhage.	.....	.....	Death from shock, ... ..	Ditto, { Wounded while } { serving a gun. } hours.
65	23	Bullet-wound of thigh. No fracture, .....	Bullet escaped,	.....	Recovery, .....	Ditto.
66	30	Bullet-wound of left cheek; also, a flesh-wound of chest, .....	Ditto,	.....	Ditto, .....	Ditto.
67	25	Bullet-wound through cheeks, breaking jaw, .....	Bullet escaped,	.....	Ditto, .....	Wounded in garrison.
68	40	Bullet-wound of wrist, breaking it; the same ball then passing into thigh and producing a flesh-wound near the scrotum, .....	Ditto,	.....	Ditto, .....	{ This man's hand was resting on his scrotum, when he was struck by the ball.
69	25	Bullet-wound of fore-arm, with fracture of both bones, .....	Ditto,	.....	Ditto, .....	Ditto.
70	20	Bullet-wound of upper third of fore-arm, with fracture, ... ..	Bullet not extracted, but probably escaped, ... ..		Ditto, .....	Ditto.
71	30	Bullet-wound of upper third of humerus, with comminuted fracture, ... ..	Bullet escaped,	.....	Ditto, .....	Ditto.
72	50	Bullet-wound of fore-arm, without fracture, .....	Ditto,	.....	Ditto, .....	Ditto.



Nos.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
73	Bullet-wound of temple, with fracture and driving in of inner table, .....	Bullet extracted, .....	Death from irritation, ...	Wounded in garrison, lived 10 days.
74	Bullet-wound, the ball passing in at right clavicle, down through the trunk, and out near the left hip, .....	Bullet escaped, .....	Death from shock, .....	Ditto, lived 12 hours, { Probably shot from above downwards.
75	Bullet passed into abdomen. above pubes; and was extracted close to the clavicle, where it lay under the skin, .....	Bullet extracted, .....	Death from irritation, ...	Ditto, lived 10 days.
76	Bullet-wound through both thighs, bones untouched, .....	Ditto, .....	Recovery, .....	Ditto.
77	Bullet-wound of thigh, bone escaping, .....	Bullet escaped, .....	Ditto, .....	Ditto.
78	Bullet-wound of right testicle, ....	Ditto, .....	Ditto, .....	Ditto.
79	Bullet-wound of right thigh, bone escaping, .....	Ditto, .....	Ditto, .....	Ditto.
80	Bullet-wound of leg, producing compound comminuted fracture of tibia,—fibula escaping, .....	Mortification, and secondary amputation of thigh, .....	Death from shock of operation, .....	Ditto, (6) { The amputation was secondary, and hesunk from exhaustion 12 hours after the operation.
81	Bullet-wound of leg above ankle, ball passing upwards into calf. No fracture, ...	Bullet not extracted, .....	Recovery, .....	Ditto, { Wounded while lying down.
82	Bullet-wound of abdomen, from the front; the ball wounding the bowels, and being extracted near spine, .....	Bullet extracted, .....	Death from shock, .....	Ditto, lived 3 hours.

83	20	Bullet-wound of left thigh, producing compound comminuted fracture, close below neck of bone, but not opening joint, ...	Bullet passed out, .....	Death from irritation, ...	Ditto, lived a week. A woman.
84	27	Bullet-wound of arm, bone untouched, .....	Ditto, .....	Recovery, .....	Ditto.
85	25	Bullet-graze of head, .....	.....	Ditto, .....	Ditto.
86	22	Bullet-wound of forehead, with fracture of skull and escape of brain, .....	Bullet lodged, .....	Death, .....	Ditto, death in 6 hours.
87	27	Bullet-wound of arm,—a flesh wound, ... ..	Bullet escaped, .....	Recovery, .....	Ditto.
88	20	Bullet-graze of arm, .....	Ditto, .....	Ditto, .....	Ditto.
89	20	Bullet-wound of left fore-arm, producing compound fracture of radius. Same ball passed into left side of abdomen and lodged in stomach region. No blood vomited, .....	Bullet lodged. Subsequent mortification, & secondary amputation below shoulder, .....	Death from exhaustion, ...	Ditto, (7) { When mortification set in, amputation was not permitted. Two days after, the patient agreed to amputation, and it was performed as a last resource. Death took place on the following day.
90	19	Bullet-wound of abdomen, .....	Bullet escaped, .....	Death from shock, .....	Ditto, lived 4 hours.
91	60	Wound of abdomen from a portion of brick entering it, .....	Portion of brick extracted, .....	Recovery, .....	Ditto, { Wounded while behind a wall.
92	55	Bullet-wound of skin over knee, ...	Bullet escaped, .....	Ditto, .....	Ditto.
93	25	Bullet-graze of knee, .....	.....	Ditto, .....	Ditto.
94	20	Bullet-graze of forehead, .....	.....	Ditto, .....	Ditto.
95	22	Bullet-wound of arm, with compound fracture just below shoulder. Also two bullet-wounds of fore-arm, without fracture, .....	Primary amputation at shoulder joint, .....	Death from irritation and exhaustion, .....	Ditto. (8) lived a month.
96	25	Bullet-graze of arm, .....	.....	Recovery, .....	Ditto.

Nos.	Age.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
97	23	Bullet-wound of head; ball entering forehead, passing through brain, and out at occiput, .....	Bullet escaped, .....	Death, .....	{ Wounded, in garrison, death in 2 hours.
98	20	Smash of foot from a shell, .....	Primary amputation of leg, .....	Death from tetanus, .....	Ditto, (9) lived 10 days.
99	15	Bullet-wound of foot and great laceration of soft parts. No fracture, .....	Bullet escaped, .....	Recovery, .....	Ditto.
00	25	Bullet-wound of knee, ball not penetrating, .....	Ditto, .....	Ditto, .....	Ditto.
01	24	Bullet-graze of cheek, .....	.....	Ditto, .....	Ditto.
02	17	Bullet-wound of head, ball entering behind right ear, and passing out at malar bone of right side, .....	Bullet extracted, .....	Ditto, .....	Ditto.
03	15	Bullet-wound of foot, shattering the astragalus, .....	Bullet lodged, .....	Death from irritation and exhaustion, .....	Ditto, ..... { Brought to Hospital on 8th day after infliction of wound, but would not consent to amputation, lived 10 days.
04	30	Compound comminuted fracture of thigh, from a round shot striking it, .....	Primary amputation of thigh, .....	Death from shock, .....	Ditto, (10) death in 12 hours.
05	30	Bullet-wound of foot, a flesh-wound, .....	Bullet escaped, .....	Recovery, .....	Ditto.
06	20	Bullet-wound of shoulder, a flesh-wound, .....	Bullet extracted, .....	Ditto, .....	Ditto.
07	50	Bullet-wound of back between shoulders, .....	Bullet escaped, .....	Ditto, .....	Ditto.



24	Bullet-wound of head, and fracture of temporal bone, .....	Ditto, .....	Death from irritation, ...	Ditto, lived 20 days.
25	Bullet graze of penis and thigh, ...	Ditto, .....	Recovery, .....	Ditto.
26	Bullet-wound of arm, and compound fracture, .....	Ditto, .....	Death from irritation, ...	Ditto, lived 6 weeks,
27	Bullet-wound of leg, and fracture of upper end of tibia, .....	Ditto, .....	Ditto, .....	Ditto, lived a month.
28	Bullet-wound of leg, and compound fracture of tibia, .....	Ditto, .....	Ditto, .....	Ditto, lived 6 weeks.
29	Bullet-wound of leg. No fracture,	Bullet escaped, .....	Recovery, .....	Ditto.
30	Bullet-wound of temple, ball entering, .....	Bullet lodged, .....	Death, .....	Ditto, lived 12 hours.
31	Brick (splintered) wound of wrist, and fracture of bones, .....	..... .....	Death from mortification, .....	Ditto, lived 2 days.
32	Bullet-wound of neck, ball entering at top of sternum, passing across shoulder and into right arm, .....	Bullet extracted, .....	Recovery, .....	Ditto, a woman.
33	Bullet-wound, causing fracture of fore-finger, .....	Bullet escaped, .....	Ditto, .....	Ditto.
34	Bullet-wound of abdomen, through liver, great hæmorrhage, .....	Bullet lodged, .....	Death from shock and hæmorrhage, .....	Ditto, lived 3 hours.
35	Shell-wound of gluteal-region, laying bare the muscles deeply, .....	..... .....	Death from shock and mortification, .....	Ditto, lived 2 days.
36	Shell-wound of arm, and compound fracture, .....	..... .....	Recovery, .....	Ditto.
37	Two flesh wounds of each arm and leg, and wounds of face; also a flesh wound of abdomen, all from a shell, .....	..... .....	Death from shock, .....	Ditto, lived 24 hours.
38	Shell-wound of hand, carrying away the three middle fingers, .....	Amputation of 3 fingers, .....	Recovery, .....	Ditto.
39	Shell wound of wrist, a flesh wound, .....	..... .....	Ditto, .....	Ditto.

A woman.

No.	Age.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
24	23	Bullet-wound of thigh. Bone unbroken, .....	Bullet lodged, .....	Recovery. ....	Wounded in garrison.
25	54	Bullet-wound of arm just below shoulder; ball entering in front, breaking the bone, wounding a small artery, passing through scapula, and so out, .....	Bullet escaped, .....	Death from irritation and exhaustion, .....	Ditto, lived a week.
26	25	Bullet-wound of pelvis and abdomen; ball passing in at buttock through abdomen, wounding bladder, and so out at anterior surface of belly, .....	Ditto, .....	Death from shock and exhaustion, .....	Ditto, lived 3 days.
127	20	Bullet-graze of back, .....	Ditto, .....	Recovery, .....	Ditto
128	20	Arm torn off at shoulder by round-shot, scapula implicated. }	.....	Death from shock, .....	Ditto, lived 2 days.
129	19	Bullet-wound of leg, producing compound fracture, .....	Primary amputation of leg, .....	Death from irritation, ...	Wounded outside } Amputation performed in field, lived 10 days.
130	25	Round-shot wound of knee, smashing it, .....	.....	Death from shock, .....	Ditto, lived 3 hours.
131	30	Bullet-wound of thigh. No fracture, .....	Bullet escaped, .....	Recovery, .....	Ditto.
132	27	Bullet-wound of arm, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
133	31	Bullet-wound of shoulder, ditto, ...	Ditto, .....	Ditto, .....	Ditto.
134	35	Bullet-wound of thigh, ditto, ...	Ditto, .....	Ditto, .....	Ditto.
135	30	Bullet-wound of fore finger and thumb, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
136	58	Bullet-wound of thigh, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
137	30	Bullet-wound of side, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
138	25	Bullet-wound of thigh, ditto, .....	Ditto, .....	Ditto, .....	Ditto.

39	25	Bullet-wound of arm, and compound fracture, .....	Ditto, .....	Ditto, .....	Ditto.
40	24	Bullet-wound of thigh, no fracture, .....	Ditto, .....	Ditto, .....	Ditto.
41	45	Cuts of face, neck, and flesh-wound of face from a bullet, .....	Ditto, .....	Ditto, .....	Ditto.
42	34	Bullet-wound of thigh, no fracture, .....	Ditto, .....	Ditto, .....	Ditto.
43	20	Bullet-wound of arm and side, no fracture, .....	Bullet escaped, .....	Ditto, .....	Ditto.
44	23	Round-shot-wound of leg, smashing it, .....	Primary amputation of thigh, .....	Death from shock, .....	Ditto, (12) lived 2 days.
45	30	Ditto, ditto, .....	Primary amputation of leg, .....	Death from shock, .....	Ditto, (13) lived 2 days.
46	25	Round-shot-wound of foot, smashing its anterior portion, .....	Chopart's operation, — .....	Nearly healed after 2 months, .....	Ditto, (14) { Secondary hæmorrhage 3rd day after operation, from carelessness in removing ligature. Wound subsequently attacked by worms. Afterwards, an abscess opened over inner ankle.
47	40	Bullet-wound of foot. Bones untouched, .....	Bullet escaped, .....	Ditto, .....	Ditto.
48	26	Grape-shot-wound of leg, ditto, .....	..... .....	Ditto, .....	Ditto.
49	35	Bullet-wound through back, ball lodging in chest, .....	Bullet lodged, .....	Death from irritation, ..	Ditto, lived 10 days.
50	30	Bullet-wounds of arm and abdomen, flesh-wounds, .....	Bullet escaped, .....	Recovery, .....	Ditto.
51	30	Bullet-wound of chest, breaking 2 ribs, .....	Ditto, .....	Death from irritation and exhaustion, .....	Ditto, lived 15 days.
52	27	Bullet-wound of leg, and compound fracture, .....	Ditto, .....	Recovery, .....	Ditto.
53	25	Bullet-wound of thigh, no fracture, .....	Ditto, .....	Ditto, .....	Ditto.
54	30	Bullet-wound of leg just below knee, slightly fracturing tibia, }	Bullet extracted, .....	Death from irritation and exhaustion, .....	Ditto, lived 10 days.



No.	Age	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
55	20	Bullet-wound of thigh, bone untouched, .....	Bullet escaped, .....	Recovery, .....	Wounded outside garrison.
56	22	Bullet-wound of leg, and compound fracture, .....	Ditto, .....	Death from tetanus, .....	Ditto, lived 12 days.
57	23	Bullet-wound of knee, external to joint, .....	Bullet lodged, .....	Recovery, .....	Ditto.
58	24	Bullet-wounds of chin and arm, —flesh-wounds, ... ..	Bullet escaped, .....	Ditto, ... ..	Ditto.
59	30	Bullet-wound of chin, breaking a portion of lower jaw, .....	Ditto, .....	Death from irritation, ...	Ditto, lived 5 weeks.
60	25	Bullet-wound of thigh, no fracture, .....	Ditto, .....	Recovery, ... ..	Ditto.
61	20	Bullet-wound of ditto, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
62	20	Bullet-wound of shoulder, ditto, ...	Ditto, .....	Ditto, .....	Ditto.
63	20	Contused wound of leg, from bricks falling on it, .....	..... ..	Ditto, .....	Ditto.
64	21	Bullet-wound of leg, and compound fracture, .....	Bullet escaped, .....	Ditto, .....	Ditto.
65	40	Bullet-wound of both legs, ball lodging in right, no fracture, ...	Bullet lodged, .....	Ditto, .....	Ditto.
66	45	Bullet-wound of thigh, no fracture, .....	Bullet escaped, .....	Ditto, .....	Ditto.
67	20	Bullet-wound of ditto, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
68	45	Bullet-wounds of knee and breast, —flesh-wounds, .....	Ditto, .....	Ditto, .....	Ditto.
69	20	Bullet-wound of calf, no fracture, .....	Ditto, .....	Ditto, .....	Ditto.
70	20	Bullet-wound of thigh, ditto, ... ..	Bullet lodged, .....	Ditto, .....	Ditto.
71	25	Bullet-wound of neck in 2 places, —flesh-wounds, .....	Bullet escaped, .....	Ditto, .....	Ditto.

30	Bullet-wound of side,—a flesh wound,	Bullet extracted,	.....	Ditto,	.....	Ditto,
33	Bullet-wound of elbow,—ditto, ...	Bullet escaped,	.....	Ditto,	.....	Ditto.
34	Bullet-wound of arm and thigh,—a flesh wound,	Bullet extracted,	.....	Ditto,	.....	Ditto.
35	Bullet wound of leg, ditto, .....	Ditto, .....	.....	Death from mortification,	.....	Ditto, lived 5 days.
36	Bayonet-wound of abdomen, just avoiding stomach, .....	.....	.....	Recovery,	.....	Ditto.
37	Shell-wound of cheek, and fracture of malar bone and loss of eye, .....	.....	.....	Death from shock,	.....	Wounded in garrison, lived 2 days.
38	Round-shot wound of head, smashing it, .....	.....	.....	Death instantaneous, .....	.....	Ditto, in Hospital, as a waiting g man.
39	Ditto	.....	.....	Death from shock,	.....	Ditto, lived 2 hours.
40	Bullet-wound of thigh, no fracture, .....	Bullet escaped,	.....	Recovery,	.....	Ditto.
41	Bullet-wound of thigh and leg; fracture of leg, .....	Ditto,	.....	Death from mortification,	.....	Ditto, lived 8 days.
42	Bullet-wound of hand, and fracture of all the bones, .....	Primary amputation of fore-arm, .....	.....	Nearly healed after a month, .....	.....	Wounded outside garrison, (15.)
43	Bullet-wound of thigh, bone escaping, .....	Bullet lodged,	.....	Recovery,	.....	Ditto.
44	Bullet-wound of finger, ditto, .....	Bullet escaped,	.....	Ditto,	.....	Wounded in garrison.
45	Bullet-wound of neck, ditto, .....	Bullet extracted,	.....	Ditto,	.....	Ditto.
46	Bullet-wound of chest, passing backwards through lung and scapula, .....	Ditto,	.....	Death from irritation, ...	.....	Ditto, lived 6 days.
47	Bullet-wound of knee joint, .....	Ball escaped,	.....	Death from irritation and exhaustion, ...	.....	Wounded outside garrison, ..... { Admitted 8th day after the reception of injury. Would not submit to amputation.
48	Bullet-wound of toes, without fracture, .....	Ditto,	.....	Recovery,	.....	Ditto.

No.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
39	Bullet-wound of head, no fracture, .....	Bullet extracted, .....	Recovery, .....	Wounded in garrison.
40	Bullet-wound of head, with fracture, .....	Ditto, .....	Death, .....	Wounded outside garrison, lived 2 days.
41	Bullet-wound of arm, without fracture, .....	Bullet escaped, .....	Recovery, .....	Ditto.
42	Bullet-wound of thigh, ditto, .....	Bullet extracted, .....	Ditto, .....	Wounded in garrison.
43	Bullet-wound of shoulder, passing near joint, .....	Ditto, .....	Death from irritation and exhaustion, .....	Ditto, lived 8 days.
44	Bullet-wound of arm, without fracture, .....	Bullet escaped, .....	Recovery, .....	Ditto.
45	Bullet-wound of leg, ditto, .....	Ditto, .....	Death from tetanus, .....	Ditto, lived 10 days.
46	Bullet-wound of hand, ditto, .....	Ditto, .....	Recovery, .....	Ditto.
47	Bullet-wound of hand, and fracture of fingers, .....	Amputation of 3 fingers, .....	Death from mortification, {	Wounded outside { Amputation performed outside ; garrison, ..... } lived a week.
48	Bullet-wound of head, ball entering forehead and passing out at occiput, .....	Bullet escaped, .....	Death, .....	Wounded in garrison, lived 2 hours.
49	Bullet-wound of chest, through lungs, ....	Bullet lodged, .....	Death from irritation and exhaustion, .....	Ditto, lived 5 days.
50	Bullet-wound of arm, and compound fracture, .....	Bullet escaped, .....	Doing well, .....	Ditto.
51	Bullet-wound of face and hand, flesh wounds, .....	Ditto, .....	Recovery, .....	Ditto.
52	Bullet-wound of abdomen implicating the stomach and kidneys, {	Bullet extracted from back, ....	Death from shock, .....	Ditto, lived 15 hours.
53	Bullet-wound of abdomen, near navel, .....	Bullet lodged, .....	Ditto, .....	Ditto, lived 12 hours.



24	26	Bullet wound of arm, and compound fracture, .....	Bullet escaped, .....	Death from mortification, .....	Ditto, lived 14 days.
25	20	Bullet-wound of thigh, without fracture, .....	Bullet escaped, .....	Recovery, .....	Ditto.
26	30	Bullet-wound of malar-bone,—a severe wound, .....	Bullet lodged, .....	Doing well, .....	Ditto.
27	50	Bullet-wound through scapula, ball lodging in chest, .....	Ditto, .....	Death from irritation and exhaustion, ... }	Ditto, lived 3 weeks.
28	25	Bullet-wound of leg, no fracture, .....	Bullet escaped, .....	Recovery, .....	Ditto.
29	30	Bullet-wound of little finger, .....	Amputation of little finger, .....	Ditto, .....	Ditto.
30	25	Bullet-wound of calf, a flesh-wound, .....	Bullet escaped, .....	Ditto, .....	Ditto.
31	20	Bullet-wound of arm, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
32	35	Bullet-wound of sole of foot, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
33	25	Bullet-wound of leg and back, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
34	35	Bullet-wound of hand, ditto, .....	Ditto, .....	Ditto, .....	Ditto.
35	50	Round shot-wound of thigh, carrying it away, .....	Primary amputation of thigh, .....	Death from shock of operation, .....	Ditto, (16),... { Lived 24 hours after operation.
36	26	Bullet-wound of side and fracture of ribs, .....	Bullet extracted, .....	Doing well, .....	Ditto.
37	20	Bullet-wound of head, and bad fracture of skull, .....	Bullet escaped, .....	Death from shock, .....	Ditto, lived 24 hours.
38	30	Wound of neck from a splinter of wood, laying open the deeper parts, .....	..... .....	Death from pydymia, .....	Ditto, ... { At first, much hæmorrhage, subsequently irritation and pydymia.
39	20	Bullet-wound of arm and compound fracture; ball subsequently lodging in chest, .....	Bullet lodged, .....	Death from irritation, ...	Ditto, lived 15 days.
40	25	Bullet-wound of arms, no fracture, .....	Bullet escaped, .....	Recovery, .....	Ditto.
41	20	Bullet-wound of hand, ball passing through it, .....	Ditto, .....	Ditto, .....	Ditto.



27	30	Bullet-wound of hand, no fracture, .....	Ditto, .....	Ditto, ....	Ditto.
28	27	Bullet-wound of foot, .....	Ditto, .....	Ditto, ....	Ditto.
29	27	Bullet-wound of arm, ditto, .....	Ditto, .....	Ditto, ....	Ditto.
30	30	Bullet-wound of side, ball lodging in loin, .....	Bullet lodged, .....	Death from shock, .....	Ditto, lived 6 hours.
31	30	Bullet-wound of shoulder, a flesh wound, .....	Bullet extracted, .....	Recovery, .....	Ditto.
32	26	Bullet-wound of wrist,—a flesh-wound, .....	Bullet escaped, .....	Ditto, .....	Ditto.
33	28	Bullet-wound of hand,—ditto, .....	Ditto, .....	Ditto, ....	Ditto.
34	27	Bullet-wound of side,—ditto, .....	Ditto, .....	Ditto, ....	Ditto.
35	20	Bullet-wound of arm,—ditto, .....	Ditto, .....	Ditto, ....	Ditto.
36	25	Bullet-wound of side, ball lodging in abdomen, .....	Bullet lodged, .....	Death from irritation } and exhaustion, .....	Ditto, lived 10 days,
37	30	Bullet-wound of arm, fracturing condyle of ulna, .....	Bullet escaped, .....	Recovery, .....	Ditto.
38	45	Bullet-wound of head, ball entering at ear and passing out at neck, .....	Bullet extracted, .....	Ditto, .....	Ditto.
39	34	Bullet-wound of foot and hand. No fracture, .....	Bullet escaped, .....	Ditto, .....	Ditto.
40	20	Round-shot-wound of buttock, tearing it open. Also fracture of leg, .....	..... .....	Death from shock, .....	Ditto, lived 3 hours.
41	20	Round-shot-wound of knee, smashing it, .....	Primary amputation of thigh, .....	Ditto, .....	Ditto, (18) lived an hour.
42	22	Round-shot-wound of elbow, ditto, .....	Primary amputation of arm, .....	Doing well, .....	Ditto, (19) { Sloughing ulceration at first attacked the stump, but it afterwards did well.
43	21	Round-shot-wound of arm, ditto, {	Primary amputation at shoulder-joint, .....	Ditto, .....	Ditto, (20.)



Age.	How Wounded.	Treatment.	Results, including cause of death.	Remarks.
15	Bullet-wound of arm, and compound fracture. Also, wound of side, but no fracture, .....	Amputation of arm after 6 days, .....	Doing well, .....	Wounded in garrison, (21.)
35	Round-shot-wound of leg, smashing it, .....	Primary amputation of leg, .....	Mortification and death, .....	Ditto, (22) lived 6 days.
32	Round-shot-wound of leg, smashing knee, .....	Primary amputation of thigh, .....	Death from exhaustion consequent on operation, .....	Ditto, (23) lived 4 days.
32	Round-shot-wound of arm, smashing it, .....	Amputation of arm after 8 days, .....	Doing well, .....	Ditto, (24.)
20	Bullet-wound of thigh, fracturing femur and femoral artery, .....	Primary amputation of thigh, .....	Death from shock, .....	Ditto, (25) lived 12 hours.
50	Round-shot-wound of leg, smashing it, .....	Primary amputation of leg, .....	Doing well, .....	Ditto, (26.)
30	Round-shot-wound of leg, smashing it, .....	Primary amputation of thigh, .....	Ditto, .....	Ditto, (27.)

II).—List of wounded Europeans, (principally Officers and Civilians), and Eurasians, who came under my observation during the Siege of Lucknow, between the 30th June and 25th September 1857.

No.	Age.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
1	28	Bullet-wound of left jaw, smashing it and producing great hæmorrhage and shock, .....	Bullet extracted, .....	Death from shock, .....	Wounded in { Standing behind loop-hole. Lived 10 minutes. }
2	30	Bullet-wound of back, ball breaking edge of right scapula, then passing over shoulder and out in front of it, .....	Bullet passed out, .....	Death from irritation and exhaustion, .....	Ditto, Lived 5 days.
3	50	Bullet-wound of face, the ball entering at angle of left jaw, passing upwards through palate bone and making its exit at right orbit, carrying away the eye ball with it, much hæmorrhage, .....	Ditto, .....	Ditto, .....	{ Standing behind parapet. Lived 3 weeks. }
4	33	Bullet-wound of temple, .....	Bullet lodged, .....	Immediate death, ...	Ditto. Working behind parapet.
5	25	Bullet-wound of scalp, this wound was healing when another bullet, a week after, tore open the old wound, .....	Bullet passed out, .....	Recovery, .....	{ Behind parapet. Subsequently shot again through the head, and killed. }
6	24	Bullet-wound of left chest, ball passing over surface of ribs, — not through cavity of chest, and so out at back, .....	Ditto, .....	Ditto, .....	Ditto.
7	7	Round-shot wound of face and head, smashing them, .....	.....	Immediate death, .....	Ditto, Struck while at play.

No.	Age.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
8	32	Bullet-wound of thigh, ball passing in at lower part of middle third and lodging somewhere behind knee, .....	Bullet lodged, .....	Doing well, .....	Wounded at Chinhut.
9	28	Bayonet-wound of groin, .....	.....	Recovery, .....	Ditto.
0	23	Bullet-graze of right side, .....	.....	Ditto, .....	Ditto, ... { Subsequently again wounded.
1	35	Brick (splintered) wound of left orbit, .....	.....	Ditto, .....	Wounded in garri- { Behind parason,..... } pet.
2	28	Brick (splintered) wounds of face and of knee, flesh wounds, .....	.....	Ditto, .....	Ditto.
3	27	Brick (splintered) wounds of chest and abdomen, all flesh wounds, .....	.....	Ditto, .....	Ditto, { Subsequently died of cholera.
4	38	Severe contusion of fore-finger of right hand, from a bullet striking it while in the act of firing a rifle, .....	.....	Recovery, .....	Ditto, { The rifle was broken to pieces, subsequently died of dysentery, &c.
5	27	Bullet-wound of shoulder, ball passing over scapula, and producing no fracture. ....	Bullet passed out, .....	Ditto, .....	Ditto,
6	25	Bullet-wound of shoulder, ball passing close to joint, and probably touching head of humerus, .....	Bullet lodged, .....	Doing well, .....	Ditto,
7	25	Bullet-wound of thigh, no fracture, .....	Bullet passed out, .....	Recovery, .....	Ditto, subsequently died of cholera.
8	30	Burns of arms, chest and face, .....	.....	Ditto, .....	Ditto, { While loading a mortar, subsequently killed by round-shot.

35	Bullet-wound of foot, and bad fracture of bones, .....	Primary amputation of foot, .....	Death from shock, .....	Ditto, (1) Lived 3 days.
25	Bullet-wound in centre of forehead, .....	Bullet lodged, .....	Death, .....	Ditto, { Looking over parapet— lived 20 minutes.
37	Bullet-wound of thigh, no fracture, ...	Bullet passed out, .....	Recovery, .....	Ditto.
45	Bullet-wound of lumbar region, a flesh wound, .....	Ditto, .....	Ditto, .....	Ditto.
47	Bullet-wound of arm, near shoulder, no fracture, .....	Ditto, .....	Ditto, .....	Ditto, { Subsequently died of cholera.
23	Bullet-wound of head, and slight fracture of skull, .....	Ditto, .....	Ditto, .....	Ditto, { A portion of parietal- bone discharged.
28	Bullet-wound of hand, a severe wound, ...	Ditto, .....	Ditto, .....	Ditto.
28	Bullet-wound of thigh, no fracture, .....	Bullet lodged, .....	Ditto, .....	Ditto, { Subsequently killed by round-shot.
21	Bullet-wound of mouth, breaking jaw. Ball swallowed, and after three weeks, passed per anum, .....	Bullet passed per anum, ...	Ditto, .....	Wounded at Chinhut
29	Bullet-wound of arm, and compound fracture, .....	Secondary amputation of arm, .....	Death from irritation } and exhaustion, .....	Wounded in gar- { Lived a fort- rison, (2) ..... { night.
27	Hand blown off while throwing a hand-grenade, .....	Primary amputation of fore-arm, .....	Death from irritation } and exhaustion, .....	Ditto, lived 9 days.
21	Fracture of arm, and injury to chest, from a round-shot striking it, .....	Primary amputation of arm, .....	Death from mortification, .....	Ditto, lived 48 hours.
22	Bullet-wound of chest, ball entering below clavicle passing over ribs, and out near pit of stomach, .....	Bullet passed out, .....	Death from irritation } and exhaustion, .....	Ditto, { Wounded while stooping, lived 15 days.
35	Bullet-wound of lumbar region. No fracture, also bullet-wound of fore-arm. No fracture, .....	Both bullets passed out, {	Death from irritation } and diarrhoea, .....	Wounded at Chinhut, lived 2½ months.



Nos.	Age.	How Wounded.	Treatment.	Result, including cause of death.	Remarks.
33	30	Bullet-wound through spine, ball entering stomach, .....	Bullet lodged, .....	Death from shock, .....	Wounded in garrison, lived 12 hours.
34	32	Flesh-wound of arm, from splinter of shell, .....	.....	Recovery, .....	Ditto.
35	24	Dislocation of wrist, from brick striking it, .....	.....	Ditto, .. ..	Ditto, from explosion of mine.
36	26	Compound comminuted fracture of humerus, with rupture of an artery. Much hæmorrhage a bullet-wound, .....	Bullet in part lodged, in part escaped, having split on the bone, .....	Doing well, .....	Ditto.
37	27	Contusion of side, and wound of calf, from fragments of a shell, ..	.....	Recovery, .....	Ditto.
38	23	Bullet-wound of neck, and slight splintering of upper end of sternum, .....	Bullet extracted, .....	Ditto, .....	Ditto.
39	28	Bullet-wound of head, .....	Bullet lodged, .....	Death, .....	Ditto, lived 12 hours.
40	38	Bullet-wound of face, in which malar-bone was broken and forced back, and the articulations of upper and lower jaw, on one side, broken, .....	Bullet escaped by neck, just behind temporal bone, .....	Death from pydemia, .....	Ditto, { Lived 5 weeks, bone was discharged freely from the wound.

In considering the large proportion of the above cases which proved fatal, the unfavorable circumstances under which the patients labored, must be remembered. Of the first list, Nos. 83, 112 and 116 were women.

By far the greater number of the Natives wounded were poorly nourished camp-followers; and it is well known that the vast majority of the Europeans and Eurasians had suffered more or less in health from exposure, &c., and could but feebly resist the effects of a severe wound.

The following is a Summary of the injuries contained in the lists.

## LIST I.

Nature of injuries.	Recoveries.	Deaths.	Total.
Bullet wounds, ... ..	153	63	216
Round shot wounds, ... ..	9	15	24
Shell wounds, ... ..	6	5	11
Grape shot wounds, ... ..	1	0	1
Splinter wounds (of brick } or wood,) ... .. }	2	2	4
Bayonet wounds, ... ..	1	0	1
Tulwar wounds, ... ..	2	0	2
Horse bite, .. ..	1	0	1
Total, ... ..	175	85	260

## LIST II.

Nature of injuries.	Recoveries.	Deaths.	Total.
Bullet wounds, ... ..	17	12	29
Round shot wounds, ... ..	0	2	2
Shell wounds, ... ..	2	0	2
Splinter wounds, (of brick or } wood,) ... .. }	4	0	4
Bayonet wounds, ... ..	1	0	1
Wound from bursting of hand } grenade, ... .. }	0	1	1
Burns, ... ..	1	0	1
Total, ... ..	25	15	40

Out of a total, therefore, of 300 cases, 100, or exactly one-third were fatal.

The large proportion of 245 out of the whole number, were bullet-wounds, of which 75 proved fatal. Next in number came those from round-shot,—26, of which 17 were fatal ; then shell-wounds,—13, of which 5 were fatal ; while splinter-wounds,—(2 deaths), and others, complete the list. As there was necessarily but little hand-to-hand fighting, there were but few bayonet and tulwar-wounds. The premature bursting of a hand-grenade, and the accidental ignition of some powder in a mortar, occasioned severe injuries to two Officers,—the former proving fatal.

The small number of shell-wounds appears, at first sight, curious ; for it might be supposed that shells, bursting in such a confined space as the Lucknow entrenchment, would be certain to do great damage. But such was not the case, partly because the enemy had probably but a small supply of large shells, even though they were in the habit of returning any “dummies,” (unexploded shells), we might send them ; and partly because they had not sufficiently mustered the art of cutting their fuses. Sharpnell they used frequently to send in ; but the cover was pretty good, and people were so much on the look out for it morning and evening,—when the enemy were most active,—that they generally managed to avoid it successfully.

The round-shot wounds were more numerous than those from shells, and they were too of a very serious nature. As might be expected, a round-shot makes so complete a smash of whatever it strikes, produces so great a contusion of neighbouring parts, and occasions such a shock to the system at large, that its effects cannot be other than most serious.

Of course, in such a large number of bullet-wounds as is here recorded, every variety of case was met with,—from mere graze, up to a wound of some vital part, or bad fracture of limb. It is hardly necessary to remark that the gravity of a bullet-wound depends almost entirely on the part struck,—the bullet flesh-wound only differing from a common flesh-wound inasmuch as that its track sloughs. In a healthy subject, this is a very simple process, and does not occupy any great length of time. When a bullet, on the other hand, strikes a vital part, of course the prognosis is most unfavorable ; but I know of a remarkable case,—not entered in my lists, in which a bullet lodged in the brain of

the patient, and he feels but the least possible inconvenience from it. The ball, in this instance, entered at the occiput.

The first point in the *treatment* of bullet-wounds is, of course, the possibility or not of extracting the ball, should it have lodged. This is frequently a difficult matter, and should be performed carefully. There is no operation, in certain instances, requiring more tact and judgment and knowledge of the parts, than this. I have seen that M. Baudens, late Chief Surgeon of the French Army in the Crimea, (Vide "*Lancet* of Sept. 12th 1857), says, the enlargement of the external wound was *entirely* abandoned by the French Surgeons in the late war, in the extraction of bullets. I confess to having found it useful and even necessary sometimes, though oftener perhaps the division of a ridge of fascia, or as M. Baudens says, of an "envelope of cellular tissue" removed all difficulty.

I now proceed to consider, briefly and by themselves, the injuries of limbs, as involving their treatment, and the question of amputation. Generally speaking, in Lucknow, compound fractures from bullet-wounds and round-shot could not be saved; though there were exceptions in the case of bullet-wounds. But the facilities for nursing and giving the proper care to compound fractures were not present; and, consequently, amputations were sometimes performed, when, under other circumstances, limbs might have been preserved.

Resections were practised in certain cases, but were not very successful. I have no doubt, however, that, under more favorable circumstances, they would do well, as they probably occasion less shock than amputations.

Judging from the experience gained during this siege, I come to the following conclusions as to certain points of practice.

1st. I agree with M. Baudens, that fracture of the femur by a bullet does not necessarily involve amputation. But, if complicated with wound of the femoral or other large artery, or with extensive laceration of the soft parts, or with great splintering of the bone and consequent destruction of the periosteum,—then amputation is advisable.

2nd. Penetrating wounds of the knee,—even in Natives, and when at first they appear to be going on well, necessitate amputation, which had much best be performed primarily.



3rd. Wounds of the feet implicating the bones to any considerable extent, call for amputation ; but partial are better than entire amputations, even when the injury is produced by round-shot or shell, as giving less shock to the patient and preserving to him a more useful limb.

4th. Fracture of the humerus by a bullet, even if complicated by wound of a large artery, does not necessarily demand amputation ; but I suspect it is best, as a general rule, to amputate, in the field, or when there is not good Hospital accommodation, or when the periosteum is extensively destroyed.

Amputations too often were unsuccessful during the siege of Lucknow. Of those of which I have records, among Natives, out of 27 cases, 17 were fatal ; while among Europeans, the only two cases in my list,—one of which was primary, the other secondary, were unsuccessful. I have not obtained the statistics of amputations among the Europeans generally, but have understood that about one case in every  $3\frac{1}{2}$  terminated favorably. Thus the success among Natives was greater than that among Europeans.

Below is given a

*Tabular Statement of the Cases of Amputation performed at the Native Hospital.*

Number.	Nature of amputation.	Primary or Secondary.	Result.	Cause of death.
1	Amputation of thigh,	P	Recovery.	
2	Ditto leg, ... ..	P	Death, ...	{ Irritation and ex- haustion.
3	Ditto thigh, ... ..	P	Ditto, ..	Tetanus.
4	Hay's operation on foot,	P	Recovery.	
5	Amputation at shoul- } der joint, ... .. }	P	Death, ...	{ Irritation and ex- haustion.
6	Ditto of thigh, . ...	S	Ditto, ...	Shock of operation.
7	Ditto arm, ... ..	S	Ditto, ...	Ditto.
8	Ditto at shoulder joint,	P	Ditto, ...	{ Irritation and ex- haustion.
9	Ditto of leg, ... ..	P	Ditto, ...	Tetanus.
10	Ditto thigh, ... ..	P	Ditto, ...	Shock of operation.
11	Ditto leg, ... ..	P	Ditto, ...	Irritation.
12	Ditto thigh, ... ..	P	Ditto, ...	Shock of operation.
13	Ditto leg, ... ..	P	Ditto, ...	Ditto.
14	Chopart's operation } on foot, ... .. }	P	Recovery.	
15	Amputation of fore- } arm, ... .. }	P	Ditto.	
16	Ditto thigh, ... ..	P	Death, ...	Shock of operation.
17	Ditto leg, ... ..	P	Ditto, ...	Mortification.
18	Ditto thigh, ... ..	P	Ditto, ..	Shock of operation.
19	Ditto arm, ... ..	P	Recovery.	
20	Ditto at shoulder joint,	P	Ditto.	
21	Ditto of arm, .. ...	S	Ditto.	
22	Ditto leg, ... ..	P	Death, ..	Mortification.
23	Ditto thigh, ... ..	P	Ditto, ..	{ Exhaustion after operation.
24	Ditto arm, ... ..	S	Recovery.	
25	Ditto thigh, ... ..	P	Death, ..	Shock of operation.
26	Ditto leg, ... ..	P	Recovery.	
27	Ditto thigh, ... ..	P	Ditto.	

It will be remarked that two of these amputations were partial,—Hay's and Chopart's of the foot.

These cases both recovered well.

Of the thigh there were 10 amputations ; of which 2 recovered.

Of the leg, seven ; of which one recovered.

Of the shoulder-joint, three ; of which one recovered.

Of the arm, four ; of which three recovered.

Of the forearm, one, which recovered.

All the amputations were primary except four,—three of the arm, and one of the thigh, two of the four recovered

There were also three cases of amputation of fingers, two of which did well ; while one was followed by mortification and death.

The causes of death among amputations, as in other cases may be divided under four heads,—viz: shock, nine cases irritation and exhaustion, four ; mortification, (moist gangrene), two ; and tetanus, two. In certain cases of bullet-wounds, sloughing ulceration, excessive suppuration and pyemia were the proximate causes of death ; and, in many instances, worms proved most troublesome.

For the removal of the latter, I found lotions of turpentine, creasote, camphor, or nitric acid, very effectual.

The shock of the operation, in many cases, was, no doubt increased in consequence of there being little or no chloroform ; while the degenerated atmosphere of the entrenchment, the want of many necessary comforts, and the generally depressing circumstances of the garrison, made the patients an easy prey to the other causes of mortality.

It is a curious fact, that the operations performed on the wounded of the Force which, under Generals Outram and Havelock, so gloriously relieved Lucknow on the 25th Sept. were even more unsuccessful than those performed among the old garrison. At Alum Bagh, a healthy and open spot 4 miles distant from Lucknow, a much larger proportion of recoveries took place.

CAMP, ALUM BAGH, }  
25th January, 1858. }